

PATENT SPECIFICATION

319,160

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PROVISIONAL SPECIFICATION.

Improvements in and relating to Toy Steam Engine Units.

I, FRANK HORNBY, of Meccano Limited, of 236, Binns Road, Old Swan, Liverpool, British, do hereby declare the nature of this invention to be as follows:—

5 This invention relates to an improved arrangement of small toy steam engine whereby such engine unit may be readily coupled up to drive a working model. In the building up of constructional models made from a number of interchangeable parts having equidistantly pitched holes adapted to form bearings for rods or the like or for coupling the various parts together it is desirable to have some means for rigidly and easily connecting a steam engine unit up to the standard equidistantly pitched holes of the model parts in order to drive the same and the present invention is directed to that object.

20 According to this invention the toy steam engine unit comprises a boiler, preferably a vertical cylindrical boiler, mounted upon a bed plate which also carries a steam chest and cylinder, say of the oscillating type, which drives a crank shaft in the form of a small rod. The crank shaft is journalled in side or cheek plates on the base plate and may be fitted with a pinion gearing into a larger toothed wheel on a secondary shaft, also journalled in the cheek plates. Both the bed plate and the cheek plates are perforated with a series of equidistantly spaced holes corresponding to some

standard pitch at which such equidistantly spaced holes are usually formed in the parts of constructional toy building outfits, say half an inch apart. Preferably the whole of the bed plate is so perforated with equidistantly pitched holes arranged in transverse rows and the series of perforations extends also over the whole of the cheek plates. The primary or crank shaft and the secondary geared shaft are journalled in certain of these holes and, if desired, the holes for the primary and secondary shafts may be bushed to form stouter bearing surfaces for such shafts or rods. A reversing mechanism may be provided for the steam engine unit and the usual pipe connections are provided from the boiler to the steam chest and means for firing the boiler is also fitted. The cheek plates may be stepped if desired and are in one piece with the bed plate bent up to form a single integral sheet metal stamping. The bed plate may be provided with extension wings at each side in the plane of the bed plate.

By means of such a steam engine unit with perforated bed plate attached the engine unit may be readily coupled up to or built into a constructional model made up from interchangeable perforated parts.

Dated this 12th day of November, 1928.

A. J. DAVIES,

Patent Agent,

24, Moorfields, Liverpool.

COMPLETE SPECIFICATION.

Improvements in and relating to Toy Steam Engine Units.

65 I, FRANK HORNBY, of Meccano Limited, of 236, Binns Road, Old Swan, Liverpool, British, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

70 This invention relates to an improved arrangement of small toy steam engine whereby such engine unit may be readily coupled up to drive a working model. In the building up of constructional models made from a number of interchangeable

parts having equidistantly pitched holes adapted to form bearings for rods or the like or for coupling the various parts together it is desirable to have some means for rigidly and easily connecting a steam engine unit up to the standard equidistantly pitched holes of the model parts in order to drive the same and the present invention is directed to that object.

According to this invention the toy steam engine unit comprises a boiler, preferably a vertical cylindrical boiler, mounted upon a bed plate which also



carries a steam chest and cylinder, say of the oscillating type, which drives a crank shaft in the form of a small rod. The crank shaft is journalled in side or
 5 cheek plates on the base plate and may be fitted with a pinion gearing into a larger toothed wheel on a secondary shaft, also journalled in the cheek plates. Both
 10 the bed plate and the cheek plates are perforated with a series of equidistantly spaced holes corresponding to some standard pitch at which such equidistantly spaced holes are usually formed in the parts of constructional toy building-outfits, say half an inch apart.

15 The invention will be understood by reference to the accompanying drawings in which Fig. 1 is an elevation of the toy steam engine and Fig. 2 a plan, Fig. 3 being a perspective view.

20 The toy steam engine unit comprises a boiler 1, preferably a vertical cylindrical boiler, mounted upon a bed plate 2, the boiler being connected by a pipe 3 to a
 25 steam chest 4 on which latter is mounted an oscillating cylinder 5 pivoted at 6, the connecting rod 7 of which drives a crank shaft 8 upon which is mounted a fly wheel 9. The crank shaft 8 is journalled in side or cheek plate 10 which are
 30 integral with the base plate 2 and bent up therefrom. This crank shaft may be fitted with a pinion 11 geared into a larger toothed wheel 12 on a secondary shaft 13
 35 also journalled in the cheek plates. Both the bed plate 2 and cheek plates 10 are perforated with a series of equidistantly spaced holes 14 corresponding to some standard pitch at which such equidistantly
 40 spaced holes are formed in the other parts of the constructional toy building outfits with which the steam engine unit is to be used, say half an inch apart. Preferably a considerable part of the bed plate, as
 45 shown, is so perforated with equidistantly pitched holes arranged in transverse rows and the transverse rows of perforations extend also over the side cheek plates 10.

50 The primary or crank shaft 8 and the secondary geared shaft 13 are journalled in certain of these holes 14 and, if desired,

the holes for the primary and secondary shafts may be bushed at 15 to form stouter bearing surfaces for such shafts or rods. A reversing mechanism 16 may be provided for the steam engine unit operated by a lever 17, such lever 17 working against stops 18 limiting the forward and reverse positions. The usual steam pipe connection 3 is provided from the boiler to the steam chest 4 and for the exhaust 19 and means 20 for firing the boiler is also fitted. The forward parts of the cheek plates may be extended upward at 10a and the bed plate may have a lateral wing 2a in the plane of the bed plate.

By means of such a toy steam engine with perforated bed plate attached the engine unit may be readily coupled up to or built into a constructional model made up from interchangeable perforated parts.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. A model steam engine unit for use with a system of toy construction employing perforated elements, comprising a bed plate upon which the engine is mounted, said bed plate being perforated with holes corresponding in pitch with the holes in the perforated elements of the system.

2. A model steam engine unit for use with a system of toy construction as claimed in Claim 1, in which the bed plate is formed with upstanding side cheeks perforated with holes corresponding in pitch with the holes in the perforated elements of the system.

3. The improved model steam engine mounted upon a perforated bed plate constructed, arranged and adapted to operate, substantially as described and shown in Figs. 1 to 3 of the accompanying drawings.

Dated this 3rd day of January, 1929.

A. J. DAVIES,

Patent Agent,

24, Moorfields, Liverpool.

[This Drawing is a reproduction of the Original on a reduced scale.]

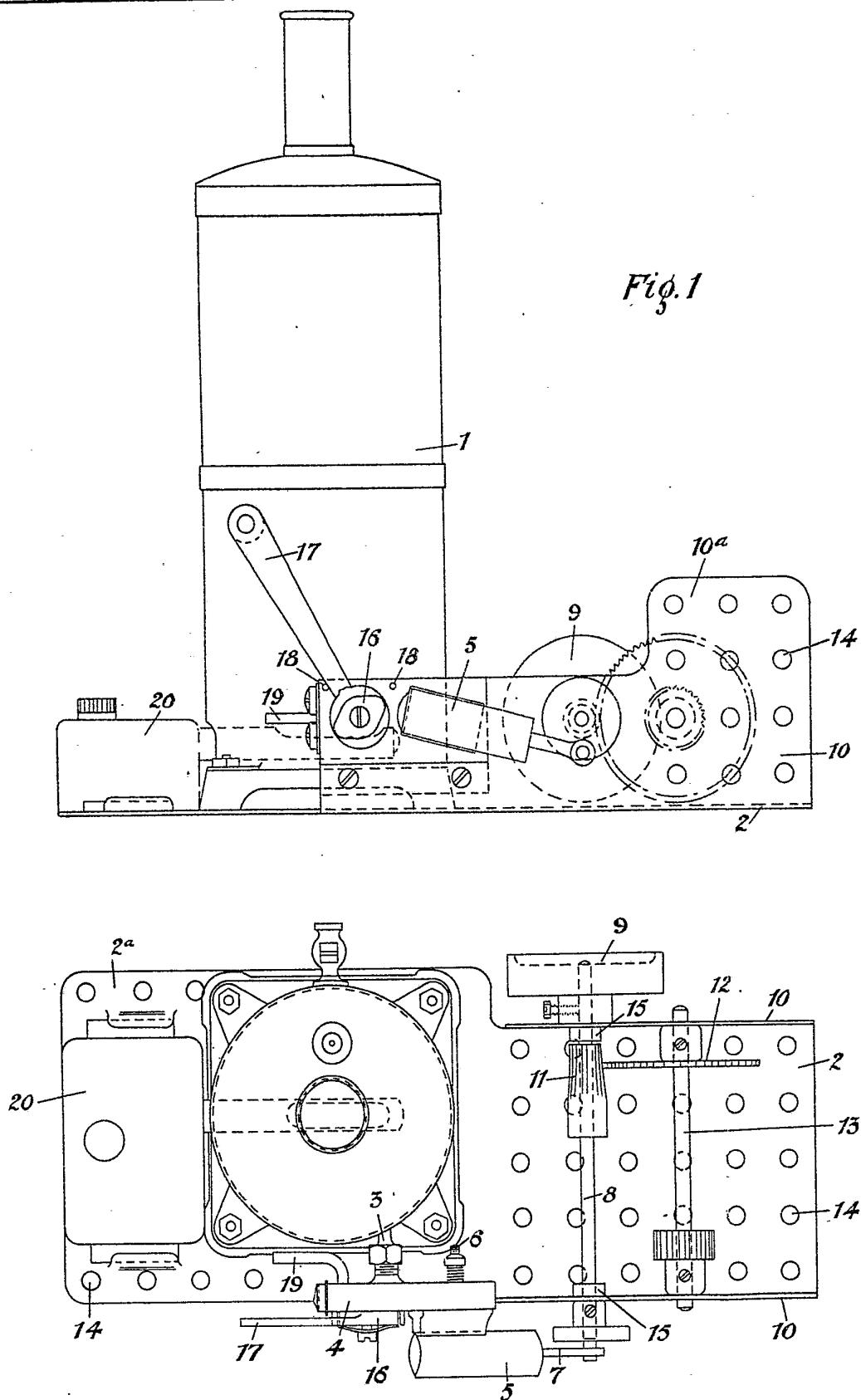


Fig. 1

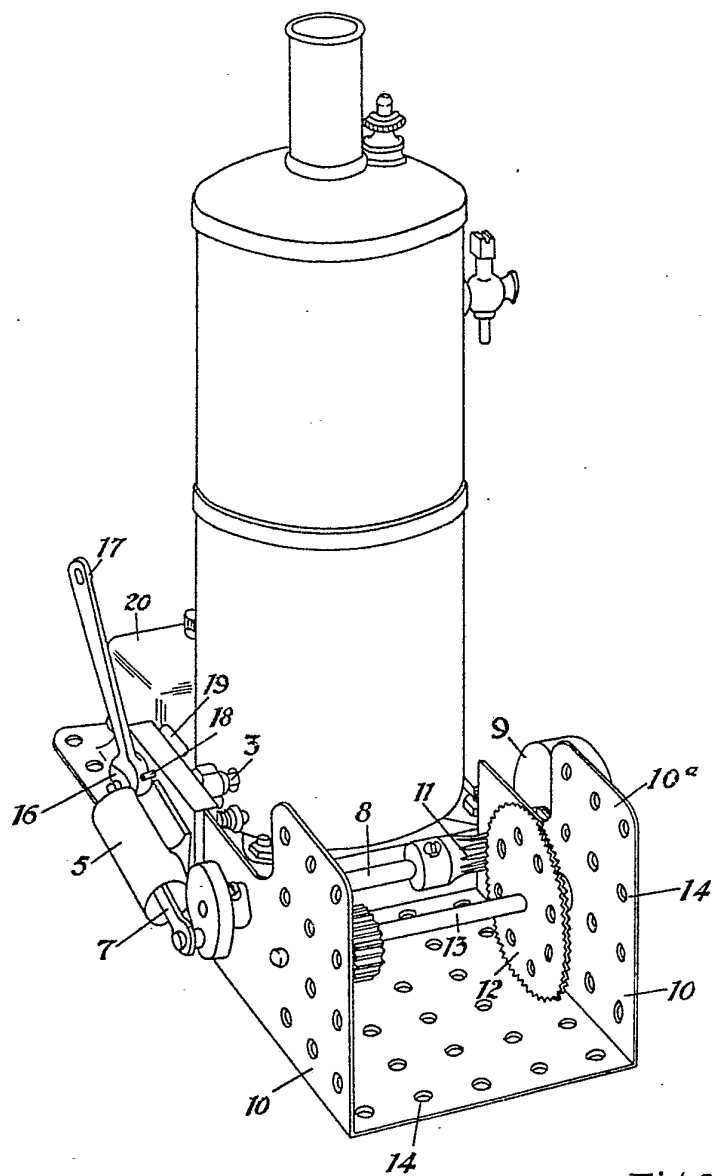
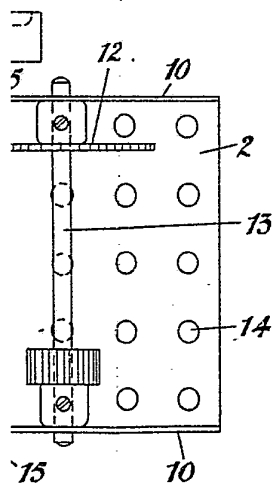
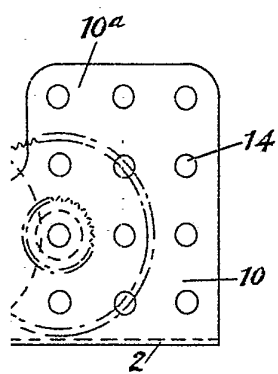


Fig. 2

Fig. 3

